

DESCRIPTION OF A NEW SPECIES OF VAMPYROPS.

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Vampyrops zarhinus, sp. nov.

Horizontal portion of nose-leaf free-projecting; upper lip crossed by a row of small warts. Outer margin of the tragus scarcely serrate and bears a single tooth at the upper border of the well-defined notch. The tip scarcely acuminate. The auricle moderately elongate, shorter than the head, external basal lobe rounded with a sharply inverted border anteriorly.

Fur dark brown above, lighter shade of brown beneath. The dorsal aspect of forearm covered with short hair. Two lateral white head stripes are present. A faint median nasal white stripe is discernible which disappears between the shoulders, and a trace only again seen for a short distance farther down. Interfemoral membrane excised on a level with the distal third of the tibia. Back of thigh, and leg hairy; a thin sparse growth seen on the dorsum of the interfemoral membrane. The first phalanx of the third digit over one-half the length of the second; the third phalanx twice the length of the second. In other respects as in *V. lineatus*.

The manal formula¹ is as follows:

1st interspace, 3mm., 2nd interspace, 17 mm., 3rd interspace, 25 mm. Difference between 2nd and 3rd, 8 mm. Forearm, 37 mm.

Skull 22 mm. long; greatest breadth (bi-auricular), 10½ mm.; least width (at proencephalon), 6 mm. Mesopterygoid fossa narrow, acuminate; pterygoid produced in a distinct spine; angular process of the mandible practically nil, posterior border of the coronoid process concave.

¹ I proposed the term manal formula for the widths of the spaces between the metacarpal bones at the distal ends when the wing is extended—as compared with the length of the forearm—in 1890. (See Proc. Amer. Philosoph. Soc. xxvii, Jan. 23rd.) This formula has been found by me to be of value in distinguishing species in a group in which many of the best characters are not found on the periphery. It has been suggested to me that this term should be “manual” instead of “manal.” I avoided the term “manual” since the significance uniformly attached to this adjective forbid in my judgment its employment in this new connection, and that it was permissible to slightly modify the spelling of the word. If, however, such a course be found inadmissible the word “pteral” may be substituted.

Teeth. The maxillary incisors much smaller than in *V. lineatus*, without notch on cutting edge, converging but not touching; the interval between them equalling that between the rudimental lateral incisor and the canine. First premolar not touching second premolar, compressed from before backward. Second premolar with well defined denticle on posterior border. Canine with a narrow groove on posterior surface just outside axis of tooth-row; first molar smaller than second; no disposition for basis of paracone and metacone to join protocone, but the grinding surface is broad and simple; protocone and hypocone are rudimental, scarcely raised above the gum. The paracone sending caliciform lines about the base of the metacone limb and partially enclosing it. The characters of the second molar quite as first. The third molar in tooth row, and about one-fourth the size of the second molar,—rudiments of protocone, paracone and metacone being discernible.

The mandibular incisors with intervals between the teeth and between third tooth and canine. The canine and premolar much as in *V. lineatus*; the posterior border of the paracone of the second premolar is distinguished by being crenulated. The canine as high as the second premolar. The molars are more rudimental than those of *V. lineatus*. The last molar is not acuminate as in this species, but is flat and, relatively to the size of the second molar, is much larger, being indeed one-third the size of the second and relatively larger than in *V. lineatus*. The molar teeth throughout with disposition to marginal cusps,—the grinding surface being smooth and concave.

MEASUREMENTS.

	MM.
Head and body (from crown of head to base of tail),	43½
Length of arm,	21
Length of forearm,	37
First digit {	3
Length of first metacarpal bone,	5
Length of first phalanx,	28
Second digit {	3½
Length of second metacarpal bone,	37
Length of first phalanx,	13
Third digit {	21
Length of third metacarpal bone,	10½
Length of first phalanx,	
Length of second phalanx,	
Length of third phalanx,	

	MM.	
Fourth digit	Length of fourth metacarpal bone,	35
	Length of first phalanx,	11
	Length of second phalanx,	13
Fifth digit	Length of fifth metacarpal bone,	36
	Length of first phalanx,	8
	Length of second phalanx,	11
Length of head,	14	
Height of ear,	13	
Height of tragus,	5	
Length of thigh,	10	
Length of tibia,	13	
Length of foot,	10	

One adult female (gravid) in alcohol. Mus. Comp. Zool. Cambridge, Mass. Habitat Brazil. Collected by Thayer expedition.

I am indebted to Prof. Alexander Agassiz for the opportunity of studying this form.

V. zarhinus agrees with *V. vittatus*, *V. infuscus*, and *V. lineatus* in the possession of three molars in the upper jaw, but is smaller than any of these species, since the forearm is but 35 mm. long and the distance from the front of the canine to the back of the second molar is but 7 mm. It resembles *V. infuscus* in the indistinct dorsal stripe but is distinguished therefrom by the presence of well defined facial stripes. In the rudimental angular process of the lower jaw and the long pointed mesopterygoid fossa, *V. zarhinus* is readily distinguished from *V. lineatus* the only other species which I have examined. In none of the species, even including the aberrant *V. carraciolae* Thomas, are the incisor teeth as wide apart as in *V. zarhinus* and in this respect it recalls the species of *Chiroderma*.

The rudimental condition of the angular process of the mandible if found to be a constant character in all the species of *Vampyrops* will serve to distinguish this genus from its ally *Chiroderma* in which the process examined is of immense size, quite as large, indeed, as in *Brachyphylla*.

Remarks on Vampyrops lineatus. The only other species of the genus with which I am familiar is *V. lineatus*. In this form the nose-leaf is not free and projecting at the horizontal portion; the auricle is more deeply emarginate than in *V. zarhinus* and is without the incurvation of the anterior part of the basal lobe. The tragus is more distinctly crenulate and has a much smaller basal notch. The

notch in the interfemoral membrane is on a line with the proximal third of the femur.

The manal formula is widely different. It is as follows:

2nd interspace, 5 mm., 3rd interspace, 20 mm., 4th interspace, 36 mm. Difference between 3rd and 4th, 16 mm. Forearm, 48 mm.

Skull. The greatest length, 25 mm.; greatest width, 10 mm.; least width, $6\frac{1}{2}$ mm.; distance from front of maxillary canine to posterior border of second molar, 9 mm.; angular process much larger than in *V. zarhinus*, but smaller than in any other stenodermatous genus examined.¹ Mesopterygoid fossa broad, rounded at anterior end; pterygoid not produced; posterior border of coronoid process not concave.

The following embrace the more important measurements of *V. lineatus*:

	MM.
Head and body (from crown of head to base of tail),	57
Length of forearm,	48
Third digit {	18
Length of first phalanx,	23
Length of second phalanx,	15
Length of third phalanx,	13½
Fourth digit {	16
Length of first phalanx,	19½
Length of second phalanx,	12
Fifth digit {	27
Length of first phalanx,	17
Length of second phalanx,	
Length of head,	27
Height of ear,	17
Height of tragus,	
Length of thigh,	15
Length of tibia,	17
Length of foot,	10

Teeth of V. lineatus. Incisor teeth with notch on cutting edge not touching each other or the canines; proportions much as in *V. zarhinus* but the centrals somewhat wider and larger. First premolar compressed from before backward, in contact with oblique posterior border of the canine; proportions as in *V. zarhinus*. Second premolar with broad denticle on posterior border. Maxillary molars with markings about base of metacone more distinct than in *V. zarhinus*. The palatal aspect of paracone fretted. The first molar with large conical protoconid; paraconid rudimental, not differentiated from

¹ This list includes all the genera excepting Pygoderma, Ametrida and Stenoderma.

the conspicuous lingual cingulum, a sharply projected anterior basal lobe continuous with commissure (overlapping the crown of the second premolar in part) forms the anterior border of the tooth. To the outer side of the lingual cingulum, *i. e.*, on the grinding face of crown, are two nodules in position of metaconid; hypoconid inconspicuous; entoconid conspicuous, cusp-like and joined by a high posterior commissure. The second molar with opposed protoconid and paraconid followed by a deep posterior prolongation with a crescent-like posterior border which is accentuated on lingual side to form a cusp (entoconid).

Remarks on Chiroderma. Since Mr. Oldfield Thomas (Am. Mag. Nat. Hist. Vol. IV, 1889) has claimed that *Chiroderma* is not distinct from *Vampyrops*, an examination of the dentition of *C. Salvini* was substituted with the following result: The maxillary incisors with slender cylindroid centrals which are four times the length of the laterals end without notched free edges. Canines as long as the combined length of the molars (measured from buccal aspect) and delicately fluted on the posterior surface. First premolar about one-fourth the size of the second and contiguous with canine. An interval is defined between the premolars; the second premolar is with well developed basal cusps both anteriorly and posteriorly, but is without denticle on the posterior border.

The first molar. The thickened conjoined base of the sectorial paracone and metacone contiguous with the base of the protocone on the grinding surface of the tooth; no basal development in metacone such as is seen in *Vampyrops*; hypocone reduced to a depressed rudiment without cusp. Protocone robust, cuspidate, twice the height of the same in *Vampyrops*.

The second molar. The base of the paracone and metacone not conjoined or touching the base of the protocone; hypocone absent; first mandibular premolar rudimental, flat, scarcely raised above the gum line, touching canine but not second premolar. The second premolar long, prominent, almost as high as the canine,—a sharp ledge-like cingulum at base anteriorly. Paraconid large, trenchant and deeply fluted on anterior surface; hypoconid much lower than it but also trenchant. The rest of the tooth broad, low, flat, without raised border in region of the entoconid.

Last molar with protoconid larger than the paraconid. A commissure extends from the protoconid to be continuous with the lingual cingulum. Paraconid not developed from cingulum; hypo-

conid simple but well defined, conoidal; entoconid well developed. An unnamed nodule on posterior border of the tooth at the buccal side of the entoconid.

The molars throughout with cusps directly on the grinding surface, *i. e.*, not confined to the margins. The cranium is in like manner distinct from *Vampyrops* in the great size of the angular process of the mandible.

In my judgment differences from *Vampyrops* of the kind denoted in the above description are sufficient to separate *Chiroderma* from other Sternoderms, until the shapes of the molar teeth shall be shown to have less taxonomic value in this group than in others of the order. The disposition to dorsal elongation of the anterior nasal aperture is a feature so unusual that it should have also weight in distinguishing *Chiroderma* even after acknowledging that the cleft disappears in old individuals.